



UNITED STATES PATENT AND TRADEMARK OFFICE

cen

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/822,563	04/08/2004	Baki Acikel	22994-07841	2612

758 7590 11/14/2007
FENWICK & WEST LLP
SILICON VALLEY CENTER
801 CALIFORNIA STREET
MOUNTAIN VIEW, CA 94041

EXAMINER

MALDONADO, JULIO J

ART UNIT	PAPER NUMBER
----------	--------------

2823

MAIL DATE	DELIVERY MODE
-----------	---------------

11/14/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/822,563	Applicant(s) ACIKEL ET AL.	
	Examiner Julio J. Maldonado	Art Unit 2823	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 October 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 29 and 32-36 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 29 and 32-36 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. The cancellation of claims 1-28, 30 and 31 as set forth in the reply filed on 10/26/2007 is acknowledged.
2. Claims 29 and 32-36 are pending in the application.
3. The indicated allowability of claims 29 and 32-36 is withdrawn in further review of the prior art of record. Rejections based on the newly cited reference(s) follow.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claim 29 is rejected under 35 U.S.C. 102(e) as being anticipated by Härtner et al. (U.S. 6,503,792 B2, hereinafter Hartner).

In reference to claim 29, Hartner (Figs.1-3c) teaches a method of forming a capacitor structure including forming a platinum bottom electrode (31) supported by a substrate (1), including forming a lateral shape of the platinum bottom electrode (31); forming a BST thin film dielectric region (32) over the platinum bottom electrode (31), including producing BST material over the platinum bottom electrode only after the lateral shape of the platinum bottom electrode (31) is formed; forming a top electrode (33) over the BST thin film dielectric region (32), including producing top electrode

material over the BST material after the BST material is produced; and annealing the BST thin film dielectric region (32) only after forming a passivation structure (34) (Hartner, column 4, line 11 – column 5, line 67).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 32, 33 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hartner ('792) as applied to claim 29 above, and further in view of Nakata (U.S. 2004/0087082 A1).

In reference to claims 32 and 33, Hartner substantially teaches all the aspects of the claimed invention but fails to disclose forming the platinum bottom electrode supported by forming a photoresist lift off mask over the substrate, the lift off mask defining the lateral shape of the bottom electrode; depositing a layer of bottom electrode material over the lift off mask; and removing the lift off mask, thereby forming the lateral shape of the bottom electrode.

However, Nakata (2A-2F) teaches a method of forming a capacitor structure including forming a platinum bottom electrode (3) including forming a photoresist lift off mask over a substrate (1), the lift off mask defining the lateral shape of the bottom electrode; depositing a layer of bottom electrode material over the lift off mask; and

removing the lift off mask, thereby forming the lateral shape of the bottom electrode (3) (Nakata, [0023]).

It would have been within the scope of one of ordinary skill in the art to combine the teachings of Hartner and Nakata to enable the disclosed bottom electrode formation step of Hartner to be performed according to the teachings of Nakata because one of ordinary skill in the art would have been motivated to look to analogous art teaching alternative suitable or useful methods of performing the disclosed bottom electrode formation step of Hartner and art recognized suitability for an intended purpose has been recognized to be motivation to combine. MPEP 2144.07.

In reference to claim 36, the combined teachings of Hartner and Nakata teach wherein forming the platinum bottom electrode further comprises forming a titanium adhesion layer located between the substrate and the platinum bottom electrode ([0022]).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Hartner and Nakata to enable further including a titanium layer during the formation of the platinum bottom electrode of Hartner according to the teachings of Nakata for the further advantage of providing adhesion to the platinum bottom electrode (Nakata, [0022]).

8. Claims 34 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hartner ('792) as applied to claim 29 above, and further in view of Moise et al. (U.S. 2001/0055852 A1, hereinafter Moise).

Hartner substantially teaches all aspects of the claimed invention but fails to disclose forming the platinum bottom electrode by forming a layer of bottom electrode material over the substrate; and etching selected lateral portions of the bottom electrode material, thereby forming the lateral shape of the bottom electrode.

However, Moise (Figs.3f-3i) teaches a method of forming a capacitor structure including the steps of forming a platinum bottom electrode (334) supported by a substrate (33), wherein said platinum bottom electrode (334) is formed by forming a layer of bottom electrode material (326) over the substrate (300); and etching selected lateral portions of the bottom electrode material (326), thereby forming the lateral shape of the bottom electrode (334) (Moise, [0031] – [0052]).

It would have been within the scope of one of ordinary skill in the art to combine the teachings of Hartner and Moise to enable the disclosed bottom electrode formation step of Hartner to be performed according to the teachings of Moise because one of ordinary skill in the art would have been motivated to look to analogous art teaching alternative suitable or useful methods of performing the disclosed bottom electrode formation step of Hartner and art recognized suitability for an intended purpose has been recognized to be motivation to combine. MPEP 2144.07.

Conclusion

9. Applicants are encouraged, where appropriate, to check Patent Application Information Retrieval (PAIR) (<http://portal.uspto.gov/external/portal/pair>) which provides applicants direct secure access to their own patent application status information, as well as to general patent information publicly available.

Application/Control Number:
10/822,563
Art Unit: 2823

Page 6

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to examiner Julio J. Maldonado whose telephone number is (571) 272-1864. The examiner can normally be reached on Monday through Friday.

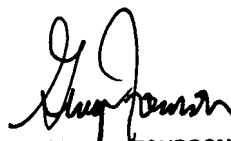
11. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Smith, can be reached on (571) 272-1907. The fax number for this group is 571-273-8300. Updates can be found at

<http://www.uspto.gov/web/info/2800.htm>.



Julio J. Maldonado
November 12, 2007

Julio J. Maldonado
Patent Examiner
Art Unit 2823



GEORGE R. FOURSON
PRIMARY EXAMINER